1. A method for the synthesis of carbide cermet powders, comprising

high-energy ball milling a mixture of a mixture of carbide cermet precursor powders and a carbon source to form an as-milled powder; and

annealing the as-milled powder to form a carbide cermet powder.

2. The method of claim 1, wherein the carbide cermet precursor powders comprises at least one of silicon, titanium, thorium, hafnium, vanadium, chromium, tungsten, nickel, cobalt, iron, tantalum, niobium, or zirconium.

3. The method of claim 1, wherein the carbon source is graphite, coal, thermal black, acetylene black, coke, or a combination thereof.

4. The method of claim 1, wherein the high-energy ball milling is performed using an attritor.

5. The method of claim 1, wherein annealing is carried out under a flow of inert gas.

6. The method of claim 1, wherein the carbide cermet precursor powders are ball milled in the presence of a liquid.

7. The method of claim 1, comprising annealing is at a temperature in the range from about 500 °C to about 1500 °C.

8. The method of claim 1, wherein the carbide cermet powder is nanostructured.

9. A method for the synthesis of micron- or submicron-sized, carbide cermet powders, comprising

high-energy ball milling a mixture of a carbon precursor, at least one of a precursor of SiC, TiC, VC, HfC, ThC_2, ThC, Cr_3C_2 WC, W_2C, ZrC, TaC, Ta_2C, or NbC, and a metal precursor to form a milled powder; and

annealing the a milled powder to form micron- or submicron-sized, carbide cermet powders.

10. The method of claim 9, wherein the precursor of SiC, TiC, VC, HfC, ThC_2, ThC, Cr_3C_2 WC, W_2C, ZrC, TaC, Ta_2C, or NbC is the corresponding oxide or element.

11. The method of claim 9, wherein the metal is cobalt, nickel, iron, chromium, or a nickel-chromium alloy.

12. The method of claim 9, wherein the carbon precursor is graphite, coal, thermal black, acetylene black, coke, or a combination thereof.

13. The method of claim 9, wherein annealing is carried out under a flow of inert gas and at a temperature in the range from about 500°C to about 1500°C.

14. The method of claim 9, wherein the carbide cermet powder is nanostructured.

15. The method of claim 9, wherein the carbon source and cermet precursor powders are ball milled in the presence of a liquid.

16. A method for the synthesis of micron- or submicron-sized tungsten carbide powders, comprising

high-energy ball milling a mixture of a tungsten source, a carbon precursor, and a cobalt source to form an milled powder; and

annealing the milled powder to form micron- or submicron-sized tungsten carbide cobalt powders.

17. The method of claim 16, wherein the tungsten source is tungsten trioxide and the cobalt source is cobalt or cobalt oxide.

18. The method of claim 16, wherein the carbon precursor is graphite, coal, thermal black, acetylene black, coke, or a combination thereof.

19. The method of claim 16, wherein annealing is carried out under a flow of inert gas, at a temperature in the range from about 700 to about 1300°C.

20. The method of claim 16, wherein the tungsten cobalt carbide powder further comprises one or more of Ni, Cr, Ni-Cr alloy, TiC, TaC, NbC, VC, or Cr_3C_2.

21. The method of claim 16, wherein the tungsten cobalt carbide powder is nanostructured.

22. The method of claim 16, wherein the carbon source, tungsten, and cobalt precursor powders are ball milled in the presence of a liquid.

23. A method for the synthesis of micron- or submicron-sized, nanostructured tungsten carbide cobalt powders, comprising

high-energy ball milling a mixture of a tungsten precursor, a carbon source, and a cobalt precursor to form an as-milled powder; and

annealing the as-milled powder at a temperature from about 700 °C to about 1300 °C, thereby forming micron- or submicron-sized, nanostructured tungsten carbide cobalt powders.

24. The method of claim 23, wherein the carbon source is graphite, coal, , thermal black, acetylene black, coke, or a combination thereof.

25. The method of claim 23, wherein annealing is carried out under a flow of inert gas.

26. The method of claim 23, wherein the nanostructured tungsten cobalt carbide powder further comprises one member of the group consisting of TiC, TaC, NbC, VC, Ni, Fe, and Cr_3C_2.

27. The method of claim 23, wherein the carbon source, tungsten, and cobalt precursor powders are ball milled in the presence of a liquid.